

Biologic therapy for psoriasis may reduce heart disease

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Human heart. Credit: copyright American Heart Association

Patients with psoriasis treated with biologic therapy, which are protein-based infusions to suppress inflammation, had a significant reduction in high-risk plaque in heart arteries, over one-year, according to new research published today in *Circulation: Cardiovascular Imaging*, an

American Heart Association journal.

Chronic [inflammation](#) in people with [psoriasis](#) is associated with a higher risk of developing [coronary artery disease](#). Biologic [therapy](#) medications are proteins that are given by injection or infusion and suppress the inflammation process by blocking the action of cytokines, which are proteins that promote systemic inflammation.

Previous research has shown a clear link between psoriasis and the development of high-risk coronary [plaque](#). This study provides characterization of a lipid-rich necrotic core, a dangerous type of coronary plaque made up of dead cells and cell debris that is prone to rupture. Ruptured plaque can lead to a [heart](#) attack or stroke.

"Having inflamed plaque that is prone to rupture increases the risk of heart attack five-fold within ten years," said Nehal N. Mehta, M.D., M.S.C.E., FAHA, study senior author, a Lasker Senior Investigator and chief of the Lab of Inflammation and Cardiometabolic Diseases at the National Heart, Lung, and Blood Institute at the National Institutes of Health in Bethesda, Maryland.

"This is the first time an imaging study in humans has shown what one year of ongoing, untreated inflammation can do to arteries of the heart and that we can reverse this damage. Untreated inflammation is dangerous. You are just waiting for a [heart attack](#) or stroke to happen," Mehta said.

The analysis involved 209 middle-aged patients (ages 37-62) with psoriasis who participated in the Psoriasis Atherosclerosis Cardiometabolic Initiative at the National Institutes of Health, an ongoing observational study. Of these participants, 124 received biologic therapy, and 85 were in the [control group](#), treated only with topical creams and light therapy.

To measure the effects of biologic therapy on arteries of the heart, the researchers performed cardiac computed tomography (CT) scans on all study participants before they started therapy and one year later. The CT results between the two groups were then compared.

At the start of the study, participants with psoriasis had low cardiovascular risk by conventional cardiovascular risk scores, and severe psoriasis was associated with higher body mass index (BMI), high-sensitivity C-reactive protein (a measure of systemic inflammation) and higher levels of coronary artery plaque.

After one year of treatment, patients who received biologic therapy were compared to the control group. Researchers found:

Biologic therapy was associated with an 8% reduction in coronary plaque. In contrast, those in the control group experienced slightly increased coronary plaque progression.

Even after adjusting for cardiovascular risk factors and psoriasis severity, patients treated with biologic therapy had reduced coronary plaque.

"There is approximately 6-8% reduction in coronary plaque following therapy with statins. Similarly, our treatment with biologic therapy reduced coronary plaque by the same amount after one year. These findings suggest that biologic therapy to treat psoriasis may be just as beneficial as statin therapy on [heart arteries](#)," Mehta said.

This study has implications for people with psoriasis and possibly for people with other chronic inflammatory conditions such as HIV, lupus and rheumatoid arthritis, who also have increased risk of heart disease.

"We have never before been able to show healing of an inflamed plaque

like this in humans. Biologic therapy reduces systemic inflammation and immune activation, and it has a favorable impact on improving overall vascular health," Mehta said. "Imagine if we can treat both psoriasis and coronary heart disease with one therapy—that is the question to be asked in future studies."

The study's findings should be interpreted with caution because it was limited by a short follow-up period and a relatively small number of patients. Larger, randomized controlled studies are needed to better understand how changes in coronary plaque may lead to a reduction in heart attacks and strokes in people with psoriasis.

More information: *Circulation: Cardiovascular Imaging* (2020). [DOI: 10.1161/CIRCIMAGING.120.011199](https://doi.org/10.1161/CIRCIMAGING.120.011199)

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